

## Subpart D—Airworthiness Requirements

### § 133.41 Flight characteristics requirements.

(a) The applicant must demonstrate to the Administrator, by performing the operational flight checks prescribed in paragraphs (b), (c), and (d) of this section, as applicable, that the rotorcraft-load combination has satisfactory flight characteristics, unless these operational flight checks have been demonstrated previously and the rotorcraft-load combination flight characteristics were satisfactory. For the purposes of this demonstration, the external-load weight (including the external-load attaching means) is the maximum weight for which authorization is requested.

(b) Class A rotorcraft-load combinations: The operational flight check must consist of at least the following maneuvers:

- (1) Take off and landing.
- (2) Demonstration of adequate directional control while hovering.
- (3) Acceleration from a hover.
- (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.

(c) *Class B and D rotorcraft-load combinations*: The operational flight check must consist of at least the following maneuvers:

- (1) Pickup of the external load.
- (2) Demonstration of adequate directional control while hovering.
- (3) Acceleration from a hover.
- (4) Horizontal flight at airspeeds up to the maximum airspeed for which authorization is requested.

(5) Demonstrating appropriate lifting device operation.

(6) Maneuvering of the external load into release position and its release, under probable flight operation conditions, by means of each of the quick-release controls installed on the rotorcraft.

(d) Class C rotorcraft-load combinations: For Class C rotorcraft-load combinations used in wire-stringing, cable-laying, or similar operations, the operational flight check must consist of the

maneuvers, as applicable, prescribed in paragraph (c) of this section.

[Doc. No. 1529, 29 FR 603, Jan. 24, 1964, as amended by Amdt. 133–5, 41 FR 55475, Dec. 20, 1976; Amdt. 133–9, 51 FR 40709, Nov. 7, 1986]

### § 133.43 Structures and design.

(a) *External-load attaching means*. Each external-load attaching means must have been approved under—

- (1) Part 8 of the Civil Air Regulations on or before January 17, 1964;
- (2) Part 133, before February 1, 1977;
- (3) Part 27 or 29 of this chapter, as applicable, irrespective of the date of approval; or
- (4) Section 21.25 of this chapter.

(b) *Quick release devices*. Each quick release device must have been approved under—

- (1) Part 27 or 29 of this chapter, as applicable;
- (2) Part 133, before February 1, 1977; or

(3) Section 21.25 of this chapter, except the device must comply with §§ 27.865(b) and 29.865(b), as applicable, of this chapter.

(c) *Weight and center of gravity*—

(1) *Weight*. The total weight of the rotorcraft-load combination must not exceed the total weight approved for the rotorcraft during its type certification.

(2) *Center of gravity*. The location of the center of gravity must, for all loading conditions, be within the range established for the rotorcraft during its type certification. For Class C rotorcraft-load combinations, the magnitude and direction of the loading force must be established at those values for which the effective location of the center of gravity remains within its established range.

[Doc. No. 14324, 41 FR 55475, Dec. 20, 1976, as amended by Amdt. 133–12, 55 FR 8006, Mar. 6, 1990]

### § 133.45 Operating limitations.

In addition to the operating limitations set forth in the approved Rotorcraft Flight Manual, and to any other limitations the Administrator may prescribe, the operator shall establish at least the following limitations and set them forth in the Rotorcraft-Load Combination Flight Manual for rotorcraft-load combination operations: